Experiences of growing buckwheat

Soil Phosphate Release
Buckwheat Husbandry
Potential Weed Control
Conclusions

P-link project

- Defra link project which used pot and on-farm rotation trials to investigate the ability of a range of 'P solubilising' crops to improve the availability of P in organic systems
- Evidence from the project suggested that it is possible to select crops and/or green manures which can have positive impacts for P cycling
- Rye and buckwheat both mobilised P rapidly from applied RP.

Buckwheat at Abbey Home Farm

- Buckwheat had been identified as having potential in P cycling
- Next phase in the P-link project was to grow replicated trial plots of buckwheat
- Coincidentally AHF was investigating potential poultry feed alternatives/additions
- 2 ha of buckwheat was planted incorporating project trial plots

Crop Husbandry

- End of cropping phase following 4 yrs of crops
- Ploughed 10th March 2009
- 3 weed strikes/seed bed cultivations in April
- Drilled 22nd May 55 kg/ha (Horsch sprinter drill)
- Ring rolled

Harvest

- Buckwheat is indeterminate – parts of the plant are setting seed pods whilst parts are still flowering!
- Crop was swathed 7th Sept (approx 5ft tall)
- Combined 21st Sept
- Yield was approx 3.5t/ha
- "Straw/haulm" was chopped
- Stubble left over winter

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Weed Control

- High level of weeds prior to buckwheat planting – arable weeds and particularly docks and couch
- Some reduction noticed under crop while growing and after harvest
- Stubble remained clean over winter
- Buckwheat is alelopathic

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Continued weed reduction

- Buckwheat was planted in half of the field, legume link and usual white clover sown in rest of field at the same time (2009)
- White clover ley planted in spring following buckwheat (2010)
- On going noticeable differences in weed populations in buckwheat area in comparison to the rest of the field

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What is the future for growing buckwheat?

- Compare autumn and spring sown crops – it is not frost hardy so will not persist in the following crop
- A green manure crop of buckwheat showed a very clear ability to solubilise PR particularly on soils low in P. Green manures are likely to provide additional benefits such as soil protection, weed suppression and reduced nitrogen (N) leaching – does this produce the same weed suppression effect?
- Could it be used within rotations to target problem weed infestations? (history of use as a smother crop)

Practical recommendations for management of soil P

- Plant available P is maximised at soil pH 6 – 7.
- Availability of P from soil reserves to crops can
- be improved by:
  - Ensuring good soil structure in order to maximise root penetration.
  - Including in the rotation those crops and green manures which have the potential to solubilise P –buckwheat is particularly effective
  - Increasing soil biological activity and hence mineralisation of organic P
  - Designing the rotation to optimise conditions for arbuscular mycorrhizal (AM) associations with crops by minimising fallows and ensuring host crops are present.

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